Melih Eren Genc

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Citizenship: Turkish (Eligible to work in Italy)

SUMMARY

Mechanical Engineer with a strong foundation in product and mechanical modeling, cultivated over approximately six years of freelance CAD experience. Eager to transition expertise in technical definition and software application into industrial automation. Possesses a keen interest in defining hardware/software structures, developing PLC and HMI code, and managing project timelines. Aims to contribute to innovative technological solutions and continuous improvement.

SKILLS

- Technical Expertise: Automation system design principles, PLC/HMI development concepts, Hardware/Software architecture definition, Technical specification drafting.
- Software Proficiency: Siemens TIA Portal, Step7, Allen Bradley RS Logix 5000, Visual Studio, Microsoft Office Suite (Word, Excel, Access, Outlook).
- Programming Languages: JavaScript, VB.NET, SQL, C.
- Professional Qualities: Project planning and reporting, Problem-solving, Adaptability, Detail-oriented approach to design and development.
- Languages: English (Fluent), Turkish (Native), German (Conversational), Italian (Intermediate).

PROFESSIONAL EXPERIENCE

Research Assistant *May 2024 - Nov 2024*
Politecnico di Torino *Turin, Italy*

- Awarded research grant for project DIMOSS, under the supervision of Dr. Marco Esposito.
- Developed a digital-twin monitoring software with Python and MATLAB.
- Employed NASTRAN/PATRAN for Finite Element Analysis and produced computation tools.
- Collaborated closely with the supervisor, and ensured the precision and the capability of the developed software.

Production Engineer *Oct 2021 - Jul 2022*
Borusan Mannesmann- Internship *Gemlik, Türkiye*

- Supervised the pipe manufacturing line.
- Developed necessary tools and techniques in order to improve the line efficiency.
- Produced new manufacturing sheets resulting in shorter cycle-time and reduction of the costs.
- Created a detailed cost analysis of the production.
- Collaborated with both a team of engineers and skilled workers.

EDUCATION

M.Sc. in Mechanical Engineering *Sep 2022 - Jul 2025*
Politecnico di Torino, Turin, Italy
B.Sc. in Mechanical Engineering- in German *Mar 2021 - Aug 2021*
Technische Hochschule Georg Agricola, Bochum, Germany
B.Sc. in Mechanical Engineering *Sep 2018 - Jul 2022*
Yildiz Technical University, Istanbul, Türkiye

KEY PROJECTS

Damage Detection and Localization in Composite Materials with Machine Learning *2022*
M.Sc. Thesis *Turin, Italy*
This study proposes a novel structural health monitoring (SHM) approach for detecting and localizing damage in composite materials. The developed system integrates spatial coordinate-based localization with ply-level damage identification. Sensor data are collected from the composite structure and processed through an ensemble of machine learning models designed to detect and localize damage with high precision. Three numerical case studies are presented to evaluate and compare the performance of different machine learning models. Additionally, a two-stage framework is introduced to improve robustness, allowing different models to be trained on distinct datasets and specialize in damage detection at various ply levels. The proposed SHM system demonstrates significant potential for real-time damage monitoring and localization, accurate remaining service life prediction, and integration with emerging smart material technologies.

DIMOSS- Displacement Monitoring using Strain Sensors *2024*
Research Activity *Turin, Italy*
DIMOSS is an integrated structural monitoring software based on discrete strain measurements for aerospace, civil, and marine structures. It includes all the necessary tools to design and implement an effective system for monitoring the displacements, strains, and stresses experienced by a structure during its operational life. As a research fellow, I collaborated by editing the MATLAB and Python scripts and handled the transfer process from MATLAB to Python.

Detecting and Preventing Pilot Induced Oscillations(PIO) with Machine Learning *2022*
B.Sc. Thesis *Istanbul, Türkiye*
Pilot-induced oscillations are rare but dangerous. This phenomenon existed at the very early stages of human air flights and it still exists to this day. Numerous different methods have been developed to control pilot-induced oscillations. This study offers a new approach by employing machine learning to detect pilot-induced oscillations by analyzing the signals from the aircraft. Different PIO occurrences are modeled and the datasets are taught to the machine in order to detect PIOs. The results of machine learning with different algorithms and their comparison are provided.

REFERENCES

Prof. Dr. Semih Sezer
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